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# CANADIAN PATENT

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ROADWAY SLOPING ATTACHMENT FOR ASPHALT  
PAVING MACHINE

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No. OF CLAIMS 10

## ROADWAY SLOPING ATTACHMENT FOR ASPHALT PAVING MACHINE

Abstract of the Disclosure: An attachment for an asphalt paving machine which permits the machine to slope the outer edge of a roadway to a desired angle. A material spreading assembly is disclosed which includes a pivoted blade having means for adjusting the angle of the lower surface of the blade relative to the bottom line of the strike-off board. The pivoted blade portion is located between the end gate and the main blade (or board) so that the assembly when attached to a paving machine serves to lay down an angled shoulder to the roadway as a part of the continuous surface laying operation.

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ROADWAY SLOPING ATTACHMENT FOR ASPHALT PAVING MACHINE

In the art of providing an asphalt surface to a road it is frequently necessary to lay a substantially horizontal ribbon of asphalt over the main portion of the roadway and to then provide either an upwardly or a downwardly sloping contiguous edge portion to the roadway. At the present time this is done by means of a separate operation since the screed assemblies or the mold boards which spread the asphalt material are adapted primarily for leveling and/or compacting the asphalt material in a substantially horizontal ribbon with no apparatus being provided to obtain a sloping portion on the edge of the roadway. It is therefore an object of the present invention to provide  
10 such an asphalt spreading and sloping attachment for an asphalt paving machine.

The present invention provides an asphalt spreading assembly for an asphalt paving machine enabling selective upward or downward sloping of a margin of a roadway comprising in combination: a first elongated blade having a substantially straight and horizontal lower edge; a second shorter elongated blade extending parallel to said first blade, said second blade having an inner end and an outer end and a lower edge including a straight segment extending from near said inner end to said outer end; support means for supporting said second blade adjacent an end of said first blade, said second blade being  
20 connected to said support means by means permitting pivoting of said second blade in a vertical plane about a pivot point near said inner end to orient said straight segment horizontally or at an upward or downward angle with respect to horizontal; and means for moving said support means and said second blade parallel to said first blade thereby to selectively position the inner end of said second blade relative to said end of said first blade. The second blade or sloping attachment preferably includes means for presenting the angle of the outer end of the assembly relative to the bottom horizontal line of said first blade, i.e. of the main spreading assembly.

The apparatus for spreading the asphalt is typically called a strike-



off board although the term screed is also frequently used even though to many people in the art the term screed refers to an assembly which does more compacting of the asphalt. Since the extension assembly can be used to perform some compacting of the material, the terms "screed extension" or "strike-off blade extension" would be appropriate.

The above and additional advantages and objects are achieved through the use of an extension unit incorporating a pivoted blade section near the outer end of the assembly and including an end gate which serves to trap asphalt material and cause the same to flow beneath the pivoted blade extension.

10 The pivot point for the blade section is maintained in line with the end of the main body of the strike-off blade forming part of the asphalt machine (or in some cases the screed) so that the sloping portion of the resulting roadway departs from the horizontal at the proper point. The inner end of the pivoted blade section is cut at an angle such that as the angle of the pivoted blade relative to the main blade is changed the departure point of the sloping portion relative to the horizontal portion of the roadway remains the same. The assembly includes a hydraulic drive for selective positioning of the sloping attachment.

20 The invention will be more clearly understood from the following description when read with reference to the accompanying drawings.

Figure 1 is a perspective view showing the sloping attachment secured to a support bar carried by the asphalt paving machine.

Figure 2 is a front elevation of the apparatus of Figure 1.

Figure 3 is a front view similar to Figure 2 but illustrating the sloping attachment positioned for creating an upwardly sloping shoulder instead of a downwardly sloping shoulder.

Figure 4 shows the rear of the pivoted blade assembly.

Turning now to the drawings, there is illustrated in Figure 1 a preferred embodiment of the invention which includes the extension support 10

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carried by the sliding blocks 11 and 12 which slide along the support bar 13.

The support bar 13 is secured to the mold board 14 which forms part of a conventional asphalt paving machine, such as those which are well known in the art. The main asphalt spreading member of the machine is illustrated as the "strike-off" board or blade 15. The blade 15 is

carried by the mold board 14. The sliding block 12 on shaft 13 has an upper portion 12A which is provided with a threaded opening through which the threaded drive bar 16 passes. The drive bar 16 is supported by bearing blocks 17 and 18 and is adapted to be selectively rotated by means of the hydraulic motor 19. Fluid supply lines 20 and 21 provide the necessary pressurized fluid for selective operation of the motor 19 to cause the sloping attachment to be moved to the desired position relative to the main blade 15.

The sloping attachment includes a pivoted blade section 30 which is pivoted by means of pin 31 to the extension body 10. The inner end of the blade 30 is in the shape of an arcuate surface 30A and is positioned adjacent the heavy steel block 33 which is welded to the main body 10. This provides protection for the inner end of the blade 30 from the asphalt which might otherwise have a tendency to get in behind the arcuate end of the blade and present a problem when adjustment of the angle takes place.

A threaded block 36 is pivoted at 37 on the upper outer end of the blade support 70 described hereinafter. A threaded adjustment shaft 38 is threaded into the pivoted block 36 and is also threaded through the block or nut 39 which is pinned to the main support 10 of the assembly. The upper portion 10A of the main body 10 is slightly angled and thus an opening 10B is provided therein in alignment with the upper end 38A of the threaded member 38. Thus a socket wrench is readily engaged with the hex end 38A for rotation of the bolt 38 to adjust the angle of the blade 30.

A conventional end gate assembly 40 is positioned at the outer end of the extension support 10 and includes an adjustable gate plate 41 which can be adjusted vertically within the slots provided by the support plate 42. It will be seen that the ends

of the support plate 42 are folded over in order to define the slots in which the plate 41 rides. The chains 43 and 44 secured at 45 and 46 to the plate 41 are coupled with the adjustment members 47 and 48 which are under the control of the rotatable control handles 49 and 50. The handles 49 and 50 are coupled to the threaded shafts 51 and 52 which pass through the threaded blocks 53 and 54 welded to the support bars 55 and 56 so that vertical adjustment of the plate 41 is readily achieved by operation of the handles 49 and 50. A bracing bar 58 is welded to the upper end of the main extension body 10 and to the support member 42 which carries the gate plate 41. A runner 60 is provided along the lower edge of the plate 41 with the leading end thereof being angled upwardly for riding over the ground as the paving operation takes place. The inner lower end 30B of the blade 30 extends at an upward angle relative to the flat lower edge 30C of the blade 30. The edges 30C and 30B are rolled slightly rearwardly in order to provide a smooth screeding and spreading action as the assembly moves during the asphalt paving operation. It will be observed that the vertical edge 15B of the main screed 15 is in line with the center line of the pin 31. Thus the pivot point for the blade 30 is such that the slope of the edge of the roadway starts at the edge normally defined by the conventional blade 15. With the angled portion 30B located as shown in Figures 2 and 3 the blade 30 then also provides a smooth continuity of the main blade 15 when the lower edge 30C is in a horizontal position. Thus the apparatus can be used as a straight-line screed or blade extension as well as for sloping purposes.

It is found in practice that in some cases it may be desirable for economic or other reasons to have the sloping portion of the roadway formed from a different thickness of the asphalt material than is the main body of the roadway. Thus the sloping attachment assembly of the present invention is so

constructed that the lower surface 30C of the blade extension 30 can be lowered relative to the lower surface of the main blade 15. Thus the blade extension assembly is constructed with the blade portion 30 being carried by the blade support 70 to which the threaded block 36 is pivoted. The threaded bolts 71 and 72 are welded to the small plates 73 and 74 secured to the blade 30 with the bolts 71 and 72 passing through the openings provided in the tabs 74 and 75 on the blade support 70. The pairs of lock-nuts 76-77 and 78-79 respectively associated with the bolts 71 and 72 above and below the tabs 74 and 75 permit selective adjustment of the blade 30 relative to the blade support 70 in a generally vertical direction. To permit this vertical adjustment of the blade portion 30 relative to the support 70, the pivot pin 31 passes through a slotted opening 30D in the blade 30 and then through a hole in support 70. The inner end of pin 31 is threaded into the main extension frame 10. The pin 31 has a large heavy washer 31A under the head of the pin so that when the pin is tightened after the blade 30 has been set to the proper elevation relative to the support 70, the desired relationship will be achieved. Bolts 81 and 82 also pass through the blade 30 and through slotted openings 30E and 30F in blade 30 beneath the plates 81A and 82A which act as washers. The inner ends of bolts 81 and 82 engage tapped holes in the support 70. Once the blade 30 has been adjusted relative to the support 70 by means of the bolt and nut assemblies 72-79 the bolts 81 and 82 together with plates 81A and 82A serve to rigidly secure the blade 30 to the support 70. Rotation of the adjustment bolt 38 then sets the blade 30 to the desired angle, the blade 30 and support 70 rotating in unison about the pin 31.

As is known in the art the asphalt machine delivers asphalt to the space between the blade 30 and end gate 40 so that as the machine advances toward the viewer in Figures 2 and



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3, the blade assembly spreads the asphalt material. With the apparatus of the present invention the machine can be used to lay a strip of asphalt on the main body of the roadway which is of a first thickness while simultaneously laying an angled shoulder portion which is of the same or a different thickness. The apparatus can also be used as a straight-line extension of the main screed or spreading blade 15.

1  
2  
3 THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
4 PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

5 1. An asphalt spreading assembly for an asphalt paving machine  
6 enabling selective upward or downward sloping of a margin of a  
7 roadway comprising in combination: a first elongated blade having  
8 a substantially straight and horizontal lower edge; a second  
9 shorter elongated blade extending parallel to said first blade,  
10 said second blade having an inner end and an outer end and a lower  
11 edge including a straight segment extending from near said inner  
12 end to said outer end; support means for supporting said second  
13 blade adjacent an end of said first blade, said second blade  
14 being connected to said support means by means permitting pivoting  
15 of said second blade in a vertical plane about a pivot point near  
16 said inner end to orient said straight segment horizontally or at  
17 an upward or downward angle with respect to horizontal; and means  
18 for moving said support means and said second blade parallel to  
19 said first blade thereby to selectively position the inner end of  
20 said second blade relative to said end of said first blade.

21 2. The apparatus of Claim 1 further comprising means for raising  
22 and lowering said second blade relative to said support means.

23 3. The apparatus of Claim 1 wherein the lower edge of said  
24 second blade includes a second straight segment extending from  
25 said first segment toward said inner end, said segments inter-  
26 secting near said inner end at an upwardly facing obtuse angle.

27 4. The apparatus of Claim 1 wherein said support means includes  
28 an upwardly inclined plate-like member extending generally  
29 parallel to said blades and having a vertical dimension substan-  
30 tially greater than said second blade, said second blade being

1 disposed along the lower part of said plate-like member and being  
2 connected thereto by means permitting said pivoting.

3 5. The apparatus of Claim 4 wherein said plate-like member has  
4 a notch in the lower outer corner thereof and said second blade  
5 is disposed opposite said notch.

6 6. The apparatus of Claim 4 wherein said means connecting said  
7 second blade to said plate-like member includes a second plate-  
8 like member interposed therebetween, said second plate-like member  
9 being of lesser vertical dimension than the first plate-like  
10 member and being pivotally connected thereto at said pivot point;  
11 said second blade being connected to and supported by said  
12 second plate-like member and being vertically adjustable with  
13 respect thereto.

14 7..The apparatus of Claim 1 wherein said inner end is arcuate  
15 with the center of curvature located at said pivot point and  
16 wherein the assembly further comprises a protection block  
17 secured to said support means, said block having an arcuate surface  
18 matching said inner end and disposed immediately adjacent thereto.

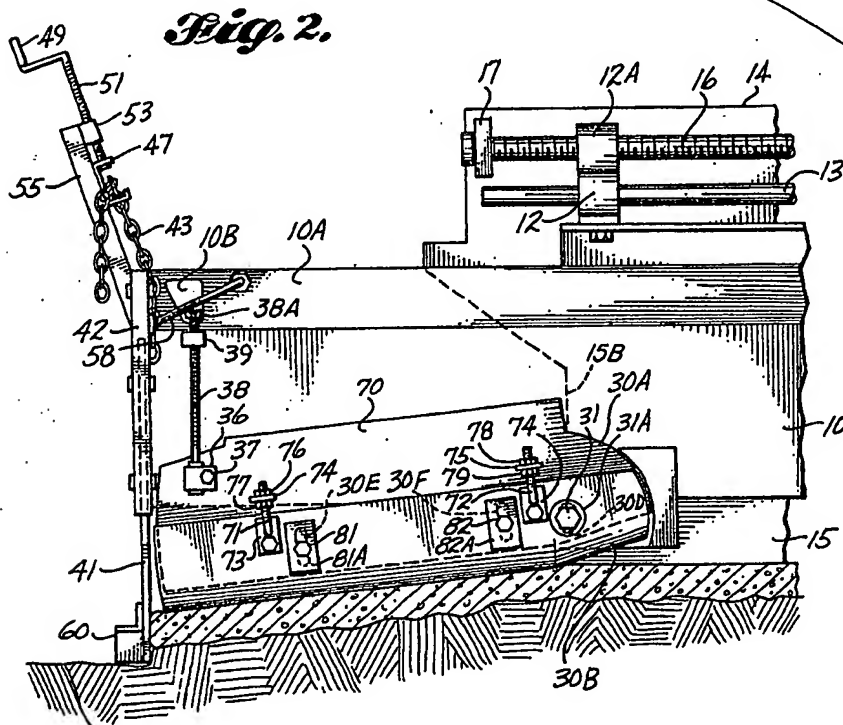
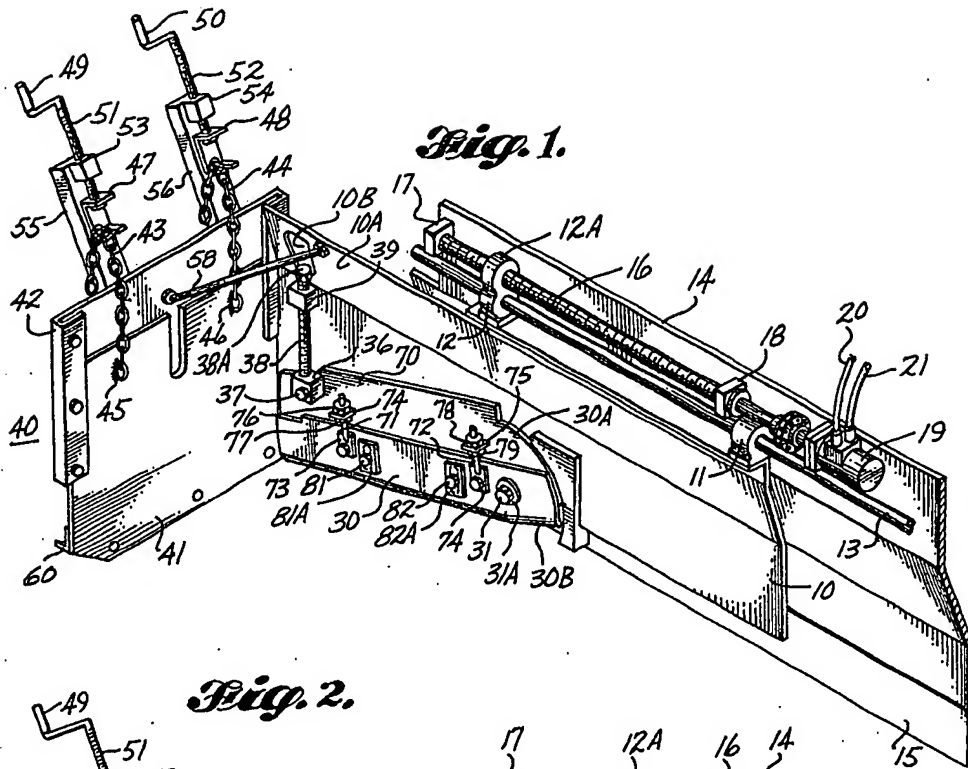
19 8. The apparatus of Claim 7 wherein the lower edge of said  
20 second blade includes a second straight segment extending from  
21 said first segment toward said inner end, said segments inter-  
22 secting near said inner end at an upwardly facing obtuse angle.

23 9. The apparatus of Claim 4 wherein the lower edge of said  
24 second blade includes a second straight segment extending from  
25 said first segment toward said inner end, said segments inter-  
26 secting near said inner end at an upwardly facing obtuse angle.

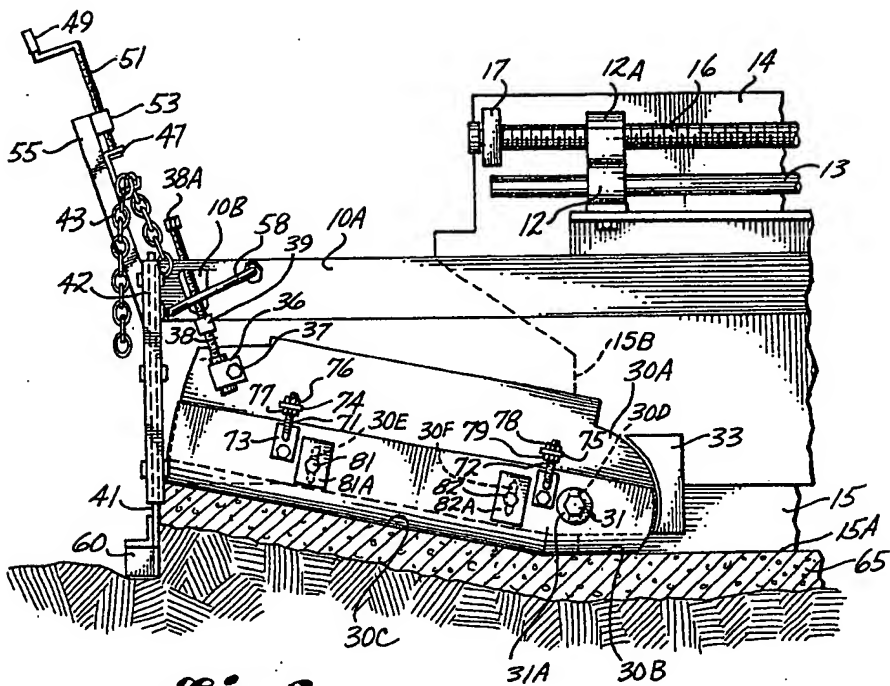
27 10. The apparatus of Claim 1 further comprising an end gate  
28 mounted on said support means and extending perpendicular to  
29 said second blade adjacent the outer end thereof.

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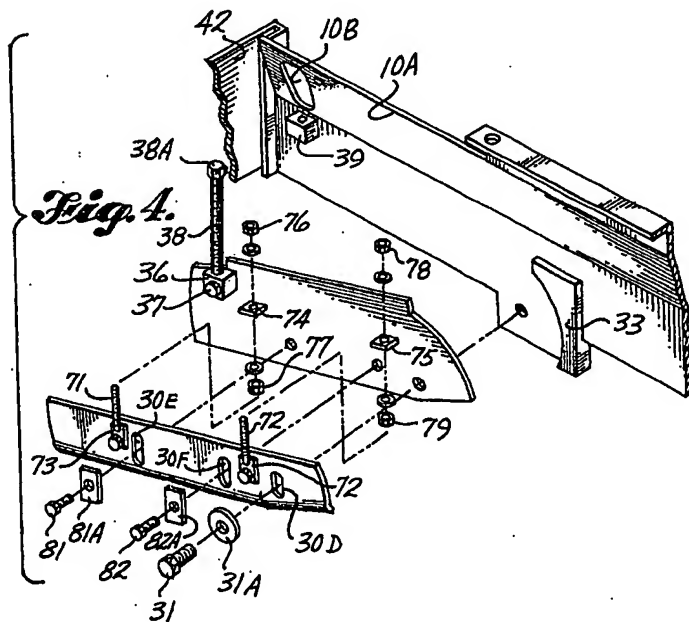




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*Fig. 3.*



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